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1. **Distributed Space-Time Block Coded OFDM for Relay-Assisted Transmission**  
Mheidat, H.; Uysal, M.; Al-Dhahir, N.;  
Communications, 2006 IEEE International Conference on  
Volume 10, June 2006 Page(s):4513 - 4519  
IEEE CNF
2. **Time-Reversal Space-Time Equalization for Amplify-and-Forward Relaying**  
Mheidat, H.; Uysal, M.; Al-Dhahir, N.;  
Communications, 2006 IEEE International Conference on  
Volume 4, June 2006 Page(s):1705 - 1711  
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3. **Self-posture changeability (SPC) for 3-D link system**  
Kaneko, M.; Tanie, K.;  
Robotics and Automation, 1992. Proceedings., 1992 IEEE International Conference on  
12-14 May 1992 Page(s):1635 - 1640 vol.2  
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4. **Field trials with IEEE 802.11b-based UHF tactical wideband radio**  
Arneson, V.; Ovsthus, K.; Bentstuen, O.I.; Sander, J.;  
Military Communications Conference, 2005. MILCOM 2005. IEEE  
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5. **Ring reconfiguration in presence of close fault cuts**  
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Parallel Architectures, Algorithms, and Networks, 1996. Proceedings. Second International Symposium on  
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6. **Deployment issues of CCS links on self-healing rings**  
Leung, A.T.; Wainberg, S.;  
Selected Areas in Communications, IEEE Journal on  
Volume 12, Issue 3, April 1994 Page(s):539 - 543  
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1. **Teleoperated robot featuring commercially available wireless network cards**  
Thompson, E.; Harmison, E.; Carper, R.; Martin, R.; Isaacs, J.;  
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22-25 May 2005 Page(s):6 pp.  
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2. **WATMnet: a prototype wireless ATM system for multimedia personal communication**  
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3. **Energy savings by intelligent interface idling in 802.11 based wireless networks**  
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4. **Energy-aware traffic shaping for wireless real-time applications**  
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Bansal, S.; Shorey, R.; Kherani, A.A.;  
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Sklavos, N.;  
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Haijin Yan; Watterson, S.A.; Lowenthal, D.K.; Kang Li; Krishnan, R.; Peterson, L.L.;  
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Acharya, A.; Ganu, S.; Misra, A.;  
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Volume 24, Issue 11, Nov. 2006 Page(s):1995 - 2004  
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10. **A client-side statistical prediction scheme for energy aware multimedia data streaming**  
Yong Wei; Bhandarkar, S.M.; Chandra, S.;  
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11. **Power-aware network swapping for wireless palmtop PCs**  
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Rong-Hou Wu; Yang-Han Lee; Shih-An Chen;  
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Volume 47, Issue 1, Feb. 2001 Page(s):73 - 79  
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Sairam, K.V.S.S.S.S.; Gunasekaran, N.; Redd, S.R.;  
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Volume 50, Issue 1, Feb 2004 Page(s):231 - 235  
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16. **Annotation Based Multimedia Streaming Over Wireless Networks**  
Cornea, R.; Dutt, N.; Nicolau, A.;  
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DeBow, B.; Syed, K.;  
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18. **An Implementation on Remote Control of Embedded Network System using a PDA**  
Yu Fan; Soo-Young Park;  
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19. **Characterizing energy consumption in a visual sensor network testbed**  
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El Bourichi, A.; Tsujimoto, T.; Yasuura, H.;  
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21. **A novel multi-channel based framework for wireless IEEE 802.11 ad hoc networks**  
Changchun Xu; Kezhong Liu; Yong Yuan; Gan Liu;  
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22. **A power-saving protocol for ad hoc networks**  
Li Ning; Xu Yuan; Xie Sheng-li;  
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Volume 2, 23-26 Sept. 2005 Page(s):808 - 811  
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23. **A integration version for polarization diversity of microstrip patch antennas**  
Yan Cheng; Zaiping Nie; Yujiang Wu;  
Antennas and Propagation Society International Symposium, 2005 IEEE  
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24. **Microstrip-fed E-shaped patch antennas and diversity pairs for wireless communications**  
Yuehe Ge; Esselle, K.P.; Bird, T.S.;  
Antennas and Propagation Society International Symposium, 2004. IEEE  
Volume 4, 20-25 June 2004 Page(s):4152 - 4155 Vol.4  
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Adya, A.; Bahl, P.; Padhye, J.; Wolman, A.; Lidong Zhou;  
Broadband Networks, 2004. BroadNets 2004. Proceedings. First International Conference on  
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**1** [Localization: Practical robust localization over large-scale 802.11 wireless networks](#)


 Andreas Haeberlen, Eliot Flannery, Andrew M. Ladd, Algis Rudys, Dan S. Wallach, Lydia E. Kavraki  
September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking MobiCom '04**


Publisher: ACM Press  
Full text available:  pdf(658.30 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We demonstrate a system built using probabilistic techniques that allows for remarkably accurate localization across our entire office building using nothing more than the built-in signal intensity meter supplied by standard 802.11 cards. While prior systems have required significant investments of human labor to build a detailed signal map, we can train our system by spending less than one minute per office or region, walking around with a laptop and recording the observed signal intensities of ...


**Keywords:** 802.11, Bayesian methods, location-aware computing, mobile systems, topological localization, wireless networks


**2** [Software engineering for mobility: a roadmap](#)

 Gruia-Catalin Roman, Gian Pietro Picco, Amy L. Murphy  
May 2000 **Proceedings of the Conference on The Future of Software Engineering ICSE '00**


Publisher: ACM Press  
Full text available:  pdf(2.07 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**3** [Columns: Risks to the public in computers and related systems](#)

 Peter G. Neumann  
January 2001 **ACM SIGSOFT Software Engineering Notes**, Volume 26 Issue 1

Publisher: ACM Press  
Full text available:  pdf(3.24 MB) Additional Information: [full citation](#)


**4** [Visualizing geospatial data](#)

 Theresa Marie Rhyne, Alan MacEachren, Theresa-Marie Rhyne  
August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**

Publisher: ACM Press  
Full text available:  pdf(14.01 MB) Additional Information: [full citation](#), [abstract](#)

This course reviews concepts and highlights new directions in GeoVisualization. We review four levels of integrating geospatial data and geographic information systems (GIS) with scientific and information visualization (VIS) methods. These include:• Rudimentary: minimal data sharing between the GIS and Vis systems• Operational: consistency of geospatial data• Functional: transparent communication between the GIS and Vis systems• Merged: one comprehensive toolkit environmentW ...

**5** [Security: Enhancing the security of corporate Wi-Fi networks using DAIR](#)

 Paramvir Bahl, Ranveer Chandra, Jitendra Padhye, Lenin Ravindranath, Manpreet Singh, Alec Wolman, Brian Zill  
June 2006 **Proceedings of the 4th international conference on Mobile systems, applications and services MobiSys 2006**

Publisher: ACM Press

Full text available:  pdf(302.26 KB)

Additional Information: full citation, abstract, references, index terms

We present a framework for monitoring enterprise wireless networks using desktop infrastructure. The framework is called DAIR, which is short for *Dense Array of Inexpensive Radios*. We demonstrate that the DAIR framework is useful for detecting rogue wireless devices (e.g., access points) attached to corporate networks, as well as for detecting Denial of Service attacks on Wi-Fi networks. Prior proposals in this area include monitoring the network via a combination of access points (APs), m ...

**Keywords:** 802.11, denial-of-service, rogue AP, security, wireless networks

#### Voice over IP versus voice over frame relay

Pauline P. Francis-Cobley, Adrian D. Coward

July 2004

**International Journal of Network Management**, Volume 14 Issue 4

Publisher: John Wiley & Sons, Inc.

Full text available:  pdf(185.08 KB)

Additional Information: full citation, abstract, references, index terms, review

This paper presents a comparison of the voice-enabling features of the Internet protocol (IP) and frame relay (FR) networks. The discussion focuses on the issues that affect the quality of service of voice applications and the relative suitability of IP and FR for delivering voice applications. This independent assessment serves to assist network managers in decision-making regarding suitable packetized voice solutions.

#### "Who's in charge here?" communicating across unequal computer platforms

Maria Velez, Marilyn Mantei Tremaine, Aleksandra Sarcevic, Bogdan Dorohonceanu, Allan Krebs, Ivan Marsic

December 2004

**ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 11 Issue 4

Publisher: ACM Press

Full text available:  pdf(1.56 MB)

Additional Information: full citation, abstract, references, index terms

People use personal data assistants in the field to collect data and to communicate with others both in the field and office. The individual in the office invariably has a laptop or a high-end personal workstation and thus, significantly more computing power, more screen real estate, and higher volume input devices, such as a mouse and keyboard. These differences give the high-end user the ability to represent and manipulate collaborative tasks more effectively. It is therefore useful to know ...

**Keywords:** Collaboration differences, heterogeneous computing, media effects, mobile computing

#### Experimental testbeds and data: The changing usage of a mature campus-wide wireless network

Tristan Henderson, David Kotz, Ilya Abyzov

September 2004

**Proceedings of the 10th annual international conference on Mobile computing and networking MobiCom '04**

Publisher: ACM Press

Full text available:  pdf(625.48 KB)

Additional Information: full citation, abstract, references, citations, index terms

Wireless Local Area Networks (WLANs) are now commonplace on many academic and corporate campuses. As "Wi-Fi" technology becomes ubiquitous, it is increasingly important to understand trends in the usage of these networks. This paper analyzes an extensive network trace from a mature 802.11 WLAN, including more than 550 access points and 7000 users over seventeen weeks. We employ several measurement techniques, including syslogs, telephone records, SNMP polling and tcpdump packet sniffing. This is ...

**Keywords:** 802.11, VoIP, WLAN, Wi-Fi, telephony, voice, wireless network

#### Wireless monitoring and denial of service: Channel surfing and spatial retreats: defenses against wireless denial of service

Wenyuan Xu, Timothy Wood, Wade Trappe, Yanyong Zhang

October 2004

**Proceedings of the 2004 ACM workshop on Wireless security WiSe '04**

Publisher: ACM Press

Full text available:  pdf(327.10 KB)

Additional Information: full citation, abstract, references, citations, index terms

Wireless networks are built upon a shared medium that makes it easy for adversaries to launch denial of service (DoS) attacks. One form of denial of service is targeted at preventing sources from communicating. These attacks can be easily accomplished by an adversary by either bypassing MAC-layer protocols, or emitting a radio signal targeted at jamming a particular channel. In this paper we present two strategies that may be employed by wireless devices to evade a MAC/PHY-layer jamming-style wi ...

**Keywords:** CSMA, Jamming, denial of service

10 [Link and channel measurement: A simple mechanism for capturing and replaying wireless channels](#)



Glenn Judd, Peter Steenkiste

August 2005

**Proceeding of the 2005 ACM SIGCOMM workshop on Experimental approaches to wireless network design and analysis E-WIND '05**

Publisher: ACM Press

Full text available: pdf(6.09 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Physical layer wireless network emulation has the potential to be a powerful experimental tool. An important challenge in physical emulation, and traditional simulation, is to accurately model the wireless channel. In this paper we examine the possibility of using on-card signal strength measurements to capture wireless channel traces. A key advantage of this approach is the simplicity and ubiquity with which these measurements can be obtained since virtually all wireless devices provide the req ...

**Keywords:** channel capture, emulation, wireless

11 [Bluetooth: a technical overview](#)



Myra Dideles

June 2003

**Crossroads**, Volume 9 Issue 4

Publisher: ACM Press

Full text available: html(38.37 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

12 [Pen computing: a technology overview and a vision](#)



André Meyer

July 1995

**ACM SIGCHI Bulletin**, Volume 27 Issue 3

Publisher: ACM Press

Full text available: pdf(5.14 MB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ...

13 [Applications: MAX: human-centric search of the physical world](#)



Kok-Kiong Yap, Vikram Srinivasan, Mehul Motani

November 2005

**Proceedings of the 3rd international conference on Embedded networked sensor systems SenSys '05**

Publisher: ACM Press

Full text available: pdf(457.61 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

MAX is a system that facilitates human-centric search of the physical world. It allows humans to search for and locate objects as and when they need it instead of organizing them *a priori*. It provides location information in a form natural to humans, i.e., with reference to identifiable landmarks (e.g., on the dining table) rather than precise coordinates. MAX was designed with the following objectives: (i) human-centric operation, (ii) privacy, and (iii) efficient search of any tagged ob ...

**Keywords:** human-centric, landmark based localization, physical world, search

14 [A case study of a system-level approach to power-aware computing](#)



Thomas L. Martin, Daniel P. Siewiorek, Asim Smailagic, Matthew Bosworth, Matthew Ettus, Jolin Warren

August 2003

**ACM Transactions on Embedded Computing Systems (TECS)**, Volume 2 Issue 3

Publisher: ACM Press

Full text available: pdf(379.49 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper introduces a systematic approach to power awareness in mobile, handheld computers. It describes experimental evaluations of several techniques for improving the energy efficiency of a system, ranging from the network level down to the physical level of the battery. At the network level, a new routing method based upon the power consumed by the network subsystem is shown to improve power consumption by 15&percnt; on average and to reduce latency by 75&percnt; over methods that consider ...

**Keywords:** Power-aware, battery properties, dynamic power management, energy-aware, handheld computers, multihop wireless network

15

Saving portable computer battery power through remote process execution

Alexey Rudenko, Peter Reiher, Gerald J. Popek, Geoffrey H. Kuenning

January 1998

**ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 2 Issue 1

Publisher: ACM Press

Full text available:  pdf(1.28.MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

We describe a new approach to power saving and battery life extension on an untethered laptop through wireless remote processing of power-costly tasks. We ran a series of experiments comparing the power consumption of processes run locally with that of the same processes run remotely. We examined the trade-off between communication power expenditures and the power cost of local processing. This paper describes our methodology and results of our experiments. We suggest ways to further improve thi ...

16

Between u and i: iStuff: a physical user interface toolkit for ubiquitous computing environments

Rafael Ballagas, Meredith Ringel, Maureen Stone, Jan Borchers

April 2003

**Proceedings of the SIGCHI conference on Human factors in computing systems CHI '03**

Publisher: ACM Press

Full text available:  pdf(645.22.KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The iStuff toolkit of physical devices, and the flexible software infrastructure to support it, were designed to simplify the exploration of novel interaction techniques in the post-desktop era of multiple users, devices, systems and applications collaborating in an interactive environment. The toolkit leverages an existing interactive workspace in-frastructure, making it lightweight and platform independent. The supporting software framework includes a dynamically configurable intermediary to s ...

**Keywords:** development tools, input and interaction technologies, intermediation, programming environments, tangible user interfaces, ubiquitous computing, user interface toolkits, wireless devices

17

Practitioners report: The parks PDA: a handheld device for theme park guests in squeak

Yoshiki Ohshima, John Maloney, Andy Ogden

October 2003

**Companion of the 18th annual ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications OOPSLA '03**

Publisher: ACM Press

Full text available:  pdf(488.82.KB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The Parks PDA is a lightweight, handheld device for theme park guests that functions as a combination guidebook, map, and digital camera. Together with a small team of artists and designers, we created a prototype Parks PDA and content for a three hour guest experience, including a camera interface, a hyper-linked guide book, three games, an animal spotters guide, a cross-referenced map, animated movies with lip-synched sound, a ride reservation system, and more. Over 800 visitors to Disney's An ...

**Keywords:** PDA, development environment, end-user software, handheld device, multimedia data management, rapid software development

18

Mobility in collaboration

Paul Luff, Christian Heath

November 1998

**Proceedings of the 1998 ACM conference on Computer supported cooperative work CSCW '98**

Publisher: ACM Press

Full text available:  pdf(1.43.MB)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** augmented reality, mobile communications, objected-centred interaction

19

Energy Efficient Systems: Wake on wireless:: an event driven energy saving strategy for battery operated devices

Eugene Shih, Paramvir Bahl, Michael J. Sinclair

September 2002

**Proceedings of the 8th annual international conference on Mobile computing and networking MobiCom '02**

Publisher: ACM Press

Full text available:  pdf(788.63.KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The demand for an all-in-one phone with integrated personal information management and data access capabilities is beginning to accelerate. While personal digital assistants (PDAs) with built-in cellular, WiFi, and Voice-Over-IP technologies have the ability to serve these needs in a single



package, the rate at which energy is consumed by PDA-based phones is very high. Thus, these devices can quickly drain their own batteries and become useless to their owner. In this paper, we introduce a techni ...

**Keywords:** low-power radio, power consumption of wireless LANs, wake-on-wireless

20



Improving mobile internet usability

George Buchanan, Sarah Farrant, Matt Jones, Harold Thimbleby, Gary Marsden, Michael Pazzani

April 2001

**Proceedings of the 10th international conference on World Wide Web WWW '01**

Publisher: ACM Press

Full text available: pdf (287.71 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



**Keywords:** HCI, WAP, mobile internet, usability

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S2	88	"network card" near3 ("wireless device" or notebook or "personal digital assistant" or pda or laptop)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 11:08
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S5	607	("network card" "network interface card" or NIC or (expansion adj (card or board))) near3 (upgrad\$4 or updat\$3 or install\$5) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 12:02

## EAST Search History

S6	23	("network card" "network interface card" or NIC or (expansion adj (card or board))) near3 (upgrad\$4 or updat\$3 or install\$5) same ("hand held" notebook or laptop or (handheld or portable or cellular or wireless) adj (device or phone or equipment)) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 11:54
S7	1	S5 and 713/191.ccls. and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:10
S11	10	S5 and "717"/\$.ccls. and @ad <= ""20011213""	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 11:56
S12	83	("network card" "network interface card") with (upgrad\$4 or updat\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 13:01
S13	1	("network card" "network interface card") with (upgrad\$4 or updat\$3) same ("hand held" notebook or laptop or (handheld or portable or cellular or wireless) adj (device or phone or equipment))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 13:02
S14	1	("network card" "network interface card") with (upgrad\$4 or updat\$3) same ("hand held" notebook or laptop or ((handheld or portable or cellular or wireless) adj (device or phone or equipment)))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 13:02
S15	27	("network card" "network interface card") with (upgrad\$4 or updat\$3) and ("hand held" notebook or laptop or ((handheld or portable or cellular or wireless) adj (device or phone or equipment)))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:22

## EAST Search History

S16	28	("network card" "network interface card") with (upgrad\$4 or updat\$3) and ("hand held" notebook or laptop or "personal digital assistant" or pda or ((handheld or portable or cellular or wireless) adj (device or phone or equipment))))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:29
S17	0	"netwok card" with (indicator or control\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 13:34
S18	0	"netwok card" with (data near2 transfer\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 13:34
S19	10	designat\$3 near ("network card" or "network interface card")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:26
S20	7	designat\$3 near ("network card" or "network interface card") and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:29
S21	12	designat\$3 near4 ("network card" or "network interface card") and ("hand held" notebook or laptop or "personal digital assistant" or pda or ((handheld or portable or cellular or wireless) adj (device or phone or equipment))))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:46
S22	213	("network card" or "network interface card") same (identifier or "serial number" or identif\$3 or key or "unique number") and ("hand held" notebook or laptop or "personal digital assistant" or pda or ((handheld or portable or cellular or wireless) adj (device or phone or equipment))))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:49

## EAST Search History

S23	29	("network card" or "network interface card") near3 (identifier or "serial number" or identifier or key or "unique number") and ("hand held" notebook or laptop or "personal digital assistant" or pda or ((handheld or portable or cellular or wireless) adj (device or phone or equipment)))and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:50
S24	2	"6681213".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 14:49
S25	1	(compar\$3 or match) same ("network card") same ("serial number" or identifier or id or identification or "unique value" or key) same (updat\$3 or upgrad\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 15:08
S26	2	(compar\$3 or match) same ("network card" or "network interface card") same ("serial number" or identifier or id or identification or "unique value" or key) same (updat\$3 or upgrad\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 15:09
S30	586	(compar\$3 or match) same ("serial number" or identifier or id or identification or "unique value" or key) same (received or transmitted) same (stored) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/11 15:11
S31	14	(compar\$3 or match) same ("serial number" or identifier or id or identification or "unique value" or key) same (received or transmitted) same (stored) same (updat\$3 or upgrad\$3) and "network card" and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 09:11

## EAST Search History

S32	0	("network card" or "network-card") same (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:30
S33	0	("network card" or "network-card" or "network interface card" or NIC) same (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 09:26
S34	1	("network card" or "network-card" or "network interface card" or NIC) and (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 17:28

## EAST Search History

S35	12	("network card" or "network-card" or "network interface card" or NIC) and (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3) and (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 09:28
S36	12	("network card" or "network-card" or "network interface card" or NIC) and ((laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3)) and (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 09:30



## EAST Search History

S37	8	((("network card" or "network-card" or "network interface card" or NIC) same (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) and (transmit\$3 or send\$3 or sent) same (key or code or "serial number" or "serial-number" or "unique number" or "unique-number" or identifier or identification or number) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3)) and (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:17
S38	1	((("network card" or "network-card" or "network interface card" or NIC) same (laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) and (transmit\$3 or send\$3 or sent) same (key or code or "serial number" or "serial-number" or "unique number" or "unique-number" or identifier or identification or number) same (receiv\$3) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3)) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 09:33
S39	1	("data base" or "data-base" or database or storage) same ((laptop or notebook or "wireless computer") near2 (client or user)) same ((("personal digital assistant" or pda) near2 (client or user)) same (pda) same (laptop or notebook or "wireless computer") and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:24

## EAST Search History

S40	3	("network card" or "network-card") same (laptop or notebook or "note-book" or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone)) same ("personal digital data" or pda)) same ("service provider" or provider) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:38
S41	1	("personal digital assistant" or pda) with ("network card") same ("service provider" or provider) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:39
S42	1	("personal digital assistant" or pda) with ("network card" or "network interface card" or NIC) same ("service provider" or provider) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:39
S43	49	("personal digital assistant" or pda) with ("network card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:39
S44	5	("personal digital assistant" or pda) near3 ("network card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 10:51
S45	15	("personal digital assistant" or pda) same(laptop or notebook) same (indicat\$3 or control\$3 or identif\$3 or distinguish\$3) same ("network card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 11:50
S47	2	"6363426".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 11:50
S48	2	"6363423".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 11:51

## EAST Search History

S49	3	(laptop or notebook or "mobile computer") same ("personal digital assistant" or pda) same ("network card" or "network-card") same (pric\$3 or "price control" or provider)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:10
S50	523	(laptop or notebook or "mobile computer") same ("personal digital assistant" or pda) and ("network card" or "network-card")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:10
S51	40	(laptop or notebook or "mobile computer") same ("personal digital assistant" or pda) same ("network card" or "network-card") and (pric\$3 or "price control" or provider)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:13
S52	24	S51 and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:10
S53	0	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) near3 ("network card" or "network-card") and (pric\$3 or "price control" or provider) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:14
S54	1	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) near3 ("network card" or "network-card") and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:14
S55	2	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) near3 ("network card" or "network-card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:16
S56	3	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) near6 ("network card" or "network-card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:16
S57	4	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) near8 ("network card" or "network-card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:16

## EAST Search History

S58	10	((laptop or notebook or "mobile computer") same ("personal digital assistant" or pda)) with ("network card" or "network-card" or "network interface card" or NIC) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 13:17
S59	18	(laptop or notebook or "note-book" or "personal digital data" or pda or cradle or ((wireless or "hand-held" or handheld or palmsize or "palm-size" or cellular or "un-wired" or cell) adj (device or computer or pc or client or "personal computer" or phone))) same (transmit\$3 or send\$3 or sent) same (receiv\$3) same (identifier or identification or ID or "serial number" or "serial-number" or number or code or key) same (calculat\$3 or comput\$3 or generat\$3 or produc\$3) same (compar\$3 or match\$3) same (updat\$3 or upgrad\$3) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 18:02
S62	463	(transmit\$3 or send\$3) same (key or identifier or identification or "serial number" or code or number) same (receiv\$3) same (calculat\$3 or comput\$3) same (compar\$3 or match\$3) same ((transmit\$3 or send\$3) adj (data or imag or text or file)) and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 18:12
S63	0	(transmit\$3 or send\$3) same (key or identifier or identification or "serial number" or code or number) same (receiv\$3) same (calculat\$3 or comput\$3) same (compar\$3 or match\$3) same ((transmit\$3 or send\$3) adj (data or imag or text or file)) same "network card" and @ad <= "20011213"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/12 18:11
S64	2	"6003135".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 10:28
S65	2	"6134593".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 10:31

## EAST Search History

S66	21	"0186389"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:22
S67	0	ep-0186389-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:36
S69	10	pcmcia same discrimination	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:42
S70	38	pcmcia and ((discriminat\$3 or restrict\$3) same ("personal digital assistant"))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:43
S71	86	pcmcia and ((discriminat\$3 or restrict\$3) same ("personal digital assistant" or pda))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:43
S72	31	pcmcia and ((discriminat\$3 or restrict\$3) near8 ("personal digital assistant" or pda))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:51
S73	1	pcmcia near8 (discriminat\$3 or restrict\$3) near8 (notebook or note\$1book or "note book" or laptop or ((mobile or portable or wireless or handheld or hand\$1held or "hand held" or "palm size") adj (device or computer)) or ("personal digital assistant" or pda))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:58
S74	5	pcmcia near8 (discriminat\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:58
S75	0	(pcmcia near8 (discriminat\$3)) same (notebook or note\$1book or "note book" or laptop or ((mobile or portable or wireless or handheld or hand\$1held or "hand held" or "palm size") adj (device or computer)) or ("personal digital assistant" or pda))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:59

## EAST Search History

S76	0	(pcmcia near8 (discriminat\$3)) and (notebook or note\$1book or "note book" or laptop or ((mobile or portable or wireless or handheld or hand\$1held or "hand held" or "palm size") adj (device or computer)) or("personal digital assistant" or pda))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/06/29 16:59
S77	627	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) and ((cellular or mobile or wireless) network) and ((personal digital assistant) or (PDA)) and (laptop) and (carrier or (service provider)) and (payment or charg\$4 or fee or bill\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 13:02
S78	2	"6671809".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 10:59
S79	0	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) and ((cellular or mobile or wireless) network) and ((personal digital assistant) or (PDA)) and (laptop) and (carrier or (service provider)) and (payment or charg\$4 or fee or bill\$4) and (platform near identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 13:01
S80	1	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) and ((cellular or mobile or wireless) network) and ((personal digital assistant) or (PDA)) and (laptop) and (carrier or (service provider)) and (platform near identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 13:01
S81	0	("2005/0133582").URPN.	USPAT	ADJ	ON	2006/05/30 13:01
S82	659	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) and ((cellular or mobile or wireless) network) and ((personal digital assistant) or (PDA)) and (laptop) and (carrier or (service provider) or vendor) and (payment or charg\$4 or fee or bill\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 13:02

## EAST Search History

S83	8	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) and ((cellular or mobile or wireless) network) and ((personal digital assistant) or (PDA)) and (laptop) and (carrier or (service provider) or vendor) and (payment or charg\$4 or fee or bill\$4) and (platform near3 (indicator or identifier or identification or discriminat\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 14:35
S85	8	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) same discriminator	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 14:37
S86	59	(pcmcia or (network card) or (network interface card) or (NIC) or (network adapter)) near ((personal digital assistant) or "PDA")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 14:58
S90	236	card with discriminator	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 15:02
S93	217	card with (device or apparatus or computer) near8 (first or specific or specified) near only	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 15:06
S94	1	card with (device or apparatus or computer) near8 work\$4 near8 (first or specific or specified) near only	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 15:07
S95	22	card with (device or apparatus or computer) near8 (function\$4 or perform\$4 or work\$4) near8 (first or specific or specified) near only	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/05/30 15:08
S96	26	(capacity near2 data near2 transm\$6) near9 (pay\$6 or charg\$6 or bill\$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/11/16 08:02
S97	0	D\$1link near4 "network card"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/12 15:29

## EAST Search History

S98	433	D\$1link	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/12 15:29
S99	0	D\$1link same charg\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/12 15:30
S10 0	264	D-link	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/12 15:30
S10 1	31	D-link and charg\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/13 09:13